(h) *Samples and protocols.* For each lot of vaccine, the following material shall be submitted to the Director, Center for Biologics Evaluation and Research, Food and Drug Administration, 8800 Rockville Pike, Bethesda, MD 20892.

(1) A sample of no less than 20 milliliters of the final product for pertussis vaccine testing.

(2) Protocols showing summaries of the manufacturing processes and the results of all mouse toxicity (§ 620.5) and potency (§ 620.4) tests performed.

[38 FR 32064, Nov. 20, 1973, as amended at 41 FR 35480, Aug. 23, 1976; 48 FR 13025, Mar. 29, 1983; 49 FR 23834, June 8, 1984; 51 FR 15610, Apr. 25, 1986; 55 FR 11013, Mar. 26, 1990]

Subpart B—Typhoid Vaccine

§ 620.10 Typhoid Vaccine.

The proper name of this product shall be Typhoid Vaccine which shall be an aqueous or dried preparation of killed *Salmonella typhi* bacteria.

[48 FR 7167, Feb. 18, 1983]

§ 620.11 Production.

(a) *Strain of bacteria.* (1) Strain Ty 2 of *Salmonella typhi* shall be used in the manufacture of Typhoid Vaccine.

(2) The antigenic integrity of the Ty 2 strain shall be verified by an appropriate serological procedure.

(b) *Propagation of bacteria.* The culture medium for propagation of *S. typhi* shall not contain ingredients known to be capable of producing allergenic effects in human subjects. The harvested bacteria shall be free of extraneous bacteria, fungi, and yeasts, as demonstrated by microscopic examination and cultural methods.

(c) *Bacterial content.* (1) The number of bacteria in the concentrate of harvested bacteria shall be estimated not later than 2 weeks after harvest and before any treatment capable of altering the accuracy of the estimate.

(2) The number of *S. typhi* bacteria in the vaccine shall not exceed 10^9 per milliliter.

(d) *Nitrogen content.* The total nitrogen content of the vaccine shall not exceed 0.035 mg./ml. for nonextracted bacteria preparations and shall not exceed 0.023 mg./ml. for acetone-extracted bacteria preparations.

(e) *Preservative.* Aqueous vaccine and the solution for reconstitution supplied with dried vaccine shall contain a preservative. Dried vaccine shall not contain a preservative.

[38 FR 32064, Nov. 20, 1973, as amended at 48 FR 7167, Feb. 18, 1983]

§ 620.12 U.S. Standard preparations.

The following U.S. Standard preparations shall be obtained from the Center for Biologics Evaluation and Research (HFB–210), Food and Drug Administration, 8800 Rockville Pike, Bethesda, MD 20892, for use as prescribed in this part:

(a) *Vaccine standard.* The U.S. Standard Typhoid Vaccine for determining the potency of Typhoid Vaccine.

(b) *Opacity standard.* The U.S. Opacity Standard for adjusting the opacity of the suspension from which the challenge culture is prepared.

[48 FR 7167, Feb. 18, 1983, as amended at 49 FR 23834, June 8, 1984; 51 FR 15610, Apr. 25, 1986; 55 FR 11015, Mar. 26, 1990]

§ 620.13 Potency test.

The number of potency units per milliliter shall be estimated for each lot of vaccine from the results of simultaneous mouse protection tests of the vaccine under test and of the U.S. Standard Typhoid Vaccine. At least four dilutions of each lot of vaccine shall be tested. The test shall be performed as follows:

(a) *Mice.* Healthy mice shall be used, all from a single strain and of the same sex, or an equal number of each sex in each group, with individual weights between 13 and 16 grams. A system of randomization shall be used to distribute the mice into the groups, with respect to shelf position and to determine the order of challenge. A group of at least 16 mice shall be used for each dilution of each vaccine. There shall be at least 4 groups consisting of no less than 10 mice each for control testing purposes, as required under paragraph (c) of this section.

(b) *Inoculation of vaccine.* (1) Serial dilutions, no greater than fivefold, of the vaccine to be tested and of the standard vaccine shall be made in saline (0.85 percent sodium chloride solution or phosphate-buffered saline). The mean